Victron Energy NT-1231

Victron Cyrix-ct 12/24V 120 Amp Battery Combiner Instruction Manual

Model: NT-1231 | Brand: Victron Energy

1. Introduction

The Victron Cyrix-ct 12/24V 120 Amp Battery Combiner is an intelligent, microprocessor-controlled relay designed to automatically connect batteries in parallel when one battery reaches a preset charging voltage. This allows for efficient charging of multiple batteries from a single source. When the voltage drops below a specified level, indicating no active charging, the Cyrix-ct automatically disconnects the batteries, preventing discharge of the starter battery by the auxiliary battery. This device is an effective alternative to diode isolators, which can cause voltage loss during charging. The Cyrix-ct features internal temperature monitoring and voltage spike suppression for enhanced reliability and safety.

2. Key Features

- **Microprocessor Controlled:** Ensures precise and reliable operation.
- **Automatic Battery Connection:** Connects batteries in parallel for charging when a charging voltage is detected.
- **Intelligent Battery Monitoring:** Prevents repeated switching by monitoring battery status.
- **Automatic Voltage Adjustment:** Compatible with both 12V and 24V systems without manual configuration.
- **High Current Rating:** Supports a maximum continuous current of 120 Amps.
- **Emergency Parallel Connection:** Remote switch activation for emergency parallel connection (e.g., for starting with auxiliary battery).
- **Internal Temperature Monitoring:** Protects the device from overheating.
- **Voltage Spike Suppression:** Enhances durability and protects connected systems.

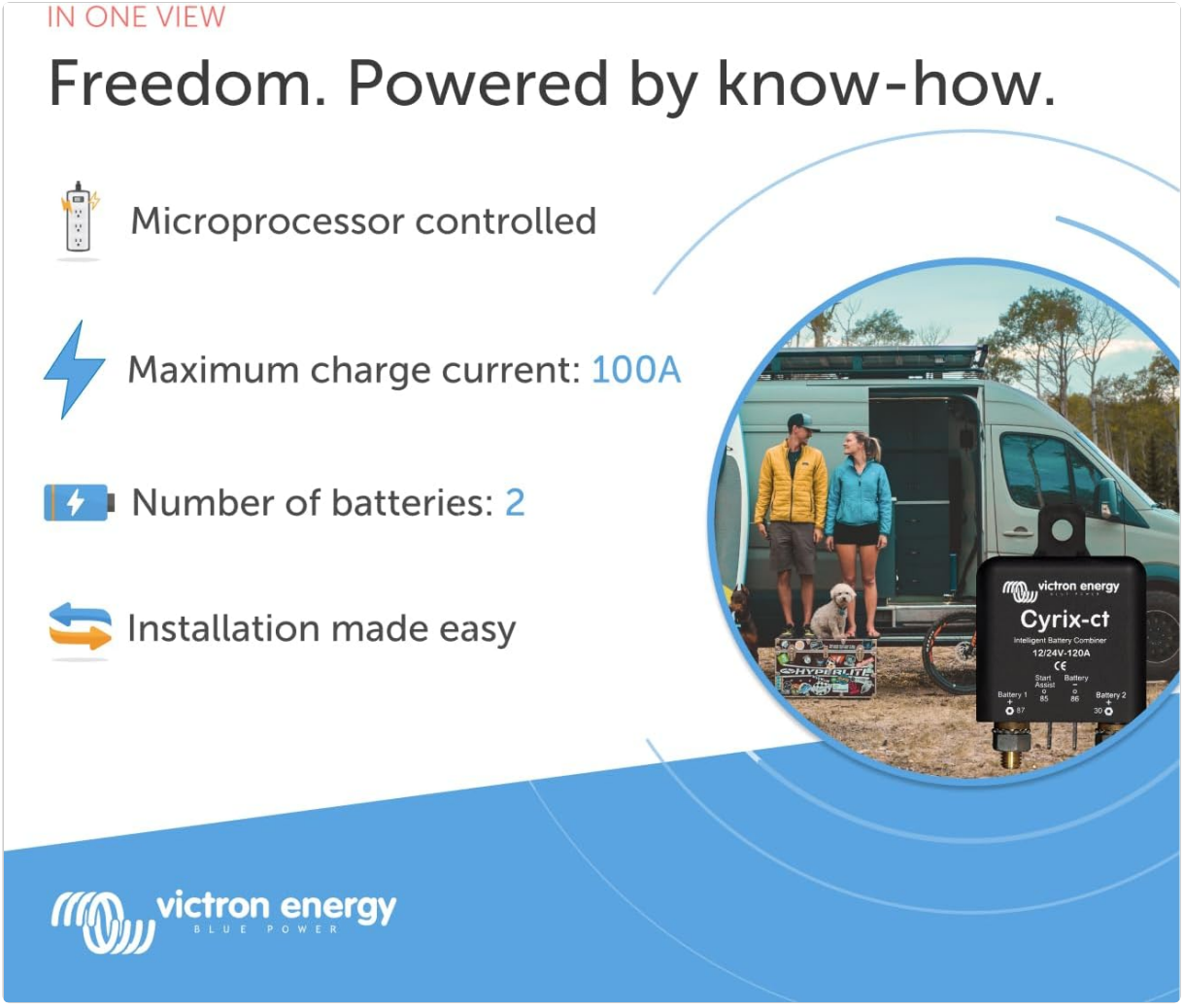

Figure 2.1: Overview of Victron Cyrix-ct key features. This image highlights the microprocessor control, maximum charge current, support for two batteries, and ease of installation.

3. Safety Information

Please read all safety instructions before installing or operating the Cyrix-ct Battery Combiner. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- Always disconnect power from the battery system before installation or maintenance.
- Wear appropriate personal protective equipment, including eye protection and insulated gloves.
- Ensure all wiring connections are secure and properly insulated to prevent short circuits.
- Install the device in a well-ventilated area, away from flammable materials.
- Do not expose the device to water or excessive moisture.
- This device is designed for 12V or 24V DC systems only. Do not connect to AC power.
- Consult a qualified professional if you are unsure about any part of the installation or operation.

4. Setup and Installation

The Cyrix-ct Battery Combiner is designed for straightforward installation. Follow the steps below and refer to the wiring diagram for proper connection.

1. **Mounting:** Choose a dry, protected location for mounting the Cyrix-ct. Ensure it is easily accessible for wiring.
2. **Wiring:**

- Connect the positive terminal of Battery 1 (typically the starter battery) to the "Battery 1 +" terminal on the Cyrix-ct.
- Connect the positive terminal of Battery 2 (typically the auxiliary/house battery) to the "Battery 2 +" terminal on the Cyrix-ct.
- Connect the negative terminals of both batteries to a common ground point. The Cyrix-ct does not require a direct negative connection.
- For optional remote control or emergency start assist, connect a switch between terminal 85 (Start Assist) and a positive source, and terminal 86 to ground. Refer to the diagram for details.

3. **Fusing:** Install appropriate fuses in line with the positive battery cables as close to the batteries as possible. The fuse rating should be suitable for the cable size and the maximum current of the Cyrix-ct (120A).
4. **Verification:** Double-check all connections for correctness and tightness before applying power.

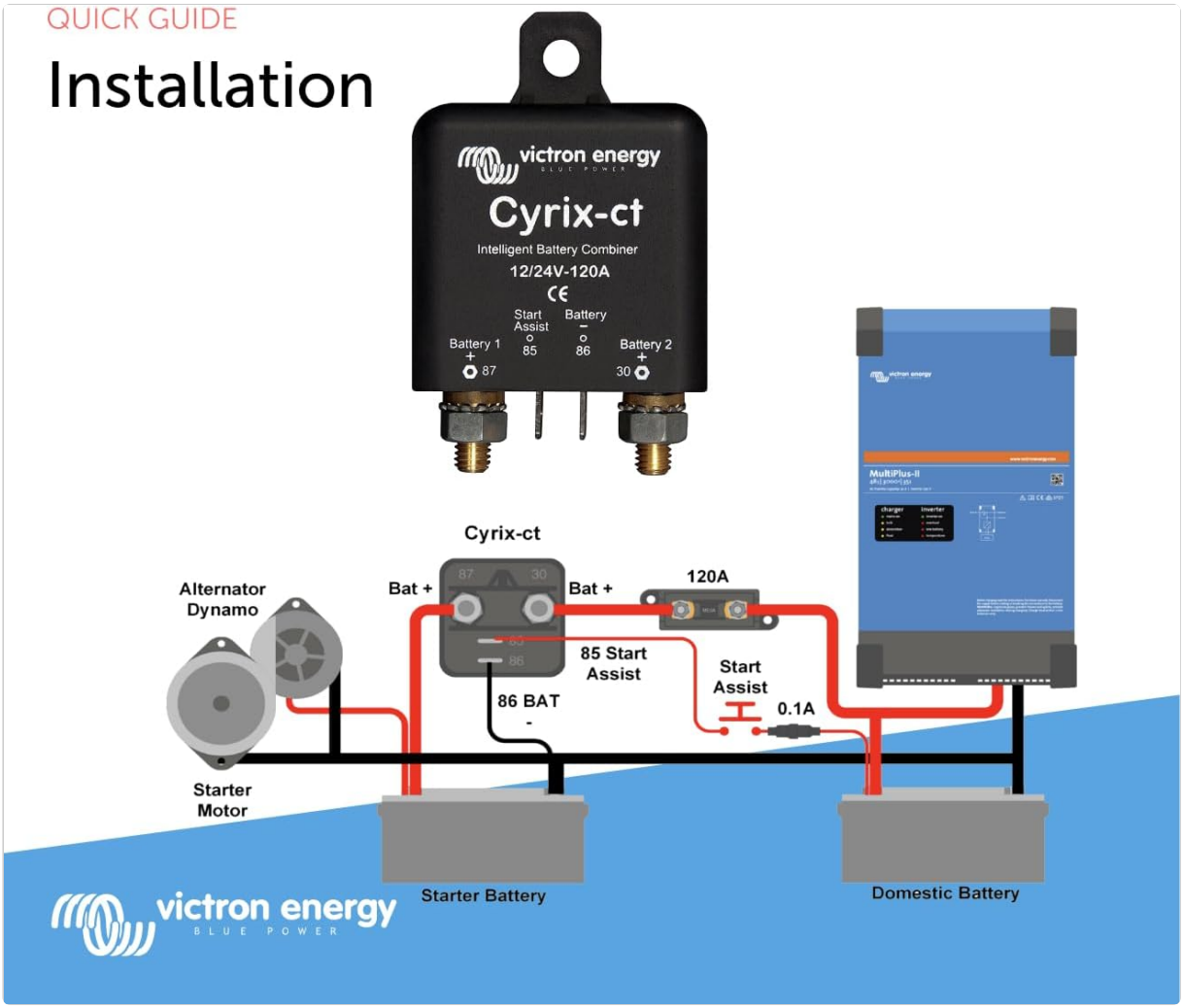

Figure 4.1: Wiring diagram for the Victron Cyrix-ct. This diagram illustrates how to connect the Cyrix-ct between a starter battery and a domestic battery, including connections to the alternator and an optional start assist switch.

Figure 4.2: Physical dimensions of the Victron Cyrix-ct. The unit measures 80mm (3.2 inches) in length and 46mm (1.8 inches) in width, indicating a compact design.

5. Operating Instructions

The Cyrix-ct operates automatically to manage the charging of your battery banks. There are no user-adjustable settings required for its primary function.

- **Automatic Connection:** When the voltage on one of the connected batteries rises above a specific threshold (e.g., 13.0V for 12V systems, 26.0V for 24V systems) for a sustained period, the Cyrix-ct will engage, connecting the two battery banks in parallel. This allows the charging source (alternator, shore power charger, solar charger) to charge both batteries simultaneously.
- **Automatic Disconnection:** If the voltage on both batteries drops below a specific threshold (e.g., 12.8V for 12V systems, 25.6V for 24V systems) for a sustained period, the Cyrix-ct will disengage, separating the battery banks. This prevents the auxiliary battery from discharging the starter battery when no charging source is active.
- **Start Assist (Optional):** If connected, activating the remote switch will force the Cyrix-ct to connect the batteries in parallel for a short period, allowing the auxiliary battery to assist in starting the engine if the starter battery is low.

Figure 5.1: Parallel charging logic of the Victron Cyrix-ct. This image explains that the Cyrix-ct prioritizes the starter battery and engages to allow parallel charging of other batteries once the starter battery reaches a sufficient voltage.

6. Specifications

Feature	Specification
Model Number	NT-1231
Brand	Victron Energy
Operating Voltage	12V or 24V DC (auto-sensing)
Maximum Continuous Current	120 Amps
Crank Rating (5 seconds)	180 Amps
Contact Type	Normally Open
Contact Material	Copper
Operating Mode	Automatic
Item Weight	110 Grams
Dimensions (Approx.)	80mm x 46mm (3.2 inches x 1.8 inches)

Feature	Specification
UPC / GTIN	616913923864, 619639706902, 08719076022145, 08719076034339

7. Maintenance

The Victron Cyrix-ct Battery Combiner is designed to be maintenance-free. However, periodic checks can help ensure optimal performance and longevity.

- **Inspect Connections:** Periodically check all wiring connections to ensure they are clean, tight, and free from corrosion. Loose connections can lead to poor performance or overheating.
- **Clean Unit:** Keep the unit clean and free from dust or debris. Use a dry cloth for cleaning. Do not use solvents or abrasive cleaners.
- **Environmental Check:** Ensure the installation environment remains dry and within the specified operating temperature range.

8. Troubleshooting

If you experience issues with your Cyrix-ct Battery Combiner, consider the following common troubleshooting steps:

- **Batteries Not Combining:**
  - Check if the charging source is active and providing sufficient voltage to at least one battery (above the connect threshold).
  - Verify all wiring connections are secure and correct, especially the positive connections to both batteries.
  - Inspect fuses in the battery lines. A blown fuse will prevent current flow.
- **Batteries Not Disconnecting:**
  - Ensure no charging source is active and the voltage on both batteries has dropped below the disconnect threshold.
  - Check for any parasitic loads that might be keeping one battery voltage artificially high.
- **Overheating:**
  - Ensure the unit is installed in a well-ventilated area and not exposed to direct sunlight or excessive heat.
  - Verify that the current draw does not exceed the maximum continuous rating of 120 Amps.

If the problem persists after performing these checks, contact Victron Energy customer support or a qualified technician.

9. Warranty and Support

The Victron Cyrix-ct 12/24V 120 Amp Battery Combiner comes with a**5-year worldwide warranty** against defects in materials and workmanship. This warranty covers repairs or replacement of the product under normal use conditions.
For warranty claims, technical support, or further assistance, please contact your authorized Victron Energy dealer or visit the official Victron Energy website for contact information.
Victron Energy Official Website: www.victronenergy.com